Activity Hazard Analysis Range 4A Fog Oil Storage Area Pelham Range, Parcel 123(6) Fort McClellan, Calhoun County, Alabama

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Activity	Potential Hazards	Recommended Controls
Staging Equipment	Slip, trip, and fall hazards	 Determine best access route before transporting equipment. Practice good housekeeping; keep work area picked up and clean as feasible. Continually inspect the work area for slip, trip, and fall hazards. Look before you step; ensure safe and secure footing.
	Heavy lifting	Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment.
	Falling objects	Stay alert and clear of materials suspended overhead; wear hard hat and steel-toed boots.
	Flying debris, dirt, dust, etc.	Wear safety glasses/goggles; ensure that eyewash is in proper working condition.
	Pinch points	 Keep hands, fingers, and feet clear of moving/suspended materials and equipment. Beware of contact points. Stay alert at all times!
	Cuts/bruises	Use cotton or leather work gloves for material handling.
	Bees, spiders, and snakes	Inspect work area carefully and avoid placing hands and feet into concealed areas.
	Ticks	 Wear light colored clothing (can see ticks better). Mow vegetated and small brush areas. Wear insect repellant. Wear long sleeves and long pants. Visually check oneself promptly and frequently after exiting the work area.
	Fire	Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Hazard communication	 Label all containers as to contents and dispose of properly. Ensure Material Safety Data Sheets (MSDS) are available for hazardous chemicals used on site.
	Noise	Sound levels above 85 decibels (dBA) mandates hearing protection.

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Activity	Potential Hazards	Recommended Controls
Staging Equipment (continued)	Lighting	Adequate lighting will be provided to ensure a safe working environment.
	Cold stress	 Workers should wear insulated clothing when temperatures drop below 40 degrees Fahrenheit (^BF). Drink warm beverages on breaks. Refrain from drinking caffeinated beverages. Remove wet clothing promptly. Take breaks in warm areas. Reduce work periods as necessary. Layer work clothing.
	Poison ivy/oak/sumac	 Avoid plant areas if possible. Wear long sleeves and long pants. Promptly wash clothing that has contacted poisonous plants. Wash affected areas immediately with soap and water.
	Heat rash	 Keep the skin clean and dry. Change perspiration-soaked clothing, as necessary. Bathe at end of work shift or day. Apply powder to affected area. Comply with IT Procedure HS400 (May 13, 1999).
	Heat cramps	 Drink plenty of cool fluids even when not thirsty. Provide cool fluid for work crews. Move victim to shaded, cool area. Comply with IT Procedure HS400 (May 13,1999).
	Heat exhaustion	 Conduct physiological worker monitoring as needed (i.e., heart rate, and oral temperature). Set up work/rest periods. Use the "buddy system." Allow workers time to acclimate. Have ice packs available for use. Take frequent breaks. Comply with IT Procedure HS 400 (May 13,1999).

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Activity	Potential Hazards	Recommended Controls
Staging Equipment (continued)	Heat stroke	 Evaluate possibility of night work. Perform physiological monitoring on workers during breaks. Wear body cooling devices. Comply with IT Procedure HS400 (May 13, 1999).
	Contact with moving equipment/vehicles	 Work area will be barricaded/demarcated. Equipment will be laid out in an area free of traffic flow. Barricades shall be used on or around work areas when it is necessary to prevent the inadvertent intrusion of pedestrian traffic. Barriers shall be used to protect workers from vehicular traffic. Barriers shall be used to guard excavations adjacent to streets or roadways. Flagging shall be used for the short term (less than 24 hours) to identify hazards until proper barricades or barriers are provided. Heavy equipment shall have backup alarms.
	Forklift operations	 Use qualified and trained forklift operators. The operator shall not exceed the load capacity rating for the forklift. The load capacity shall be clearly visible on the forklift. Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.
	Portable electric tools	 Portable electric tools that are unsafe due to faulty plugs, damaged cords, or other reasons, shall be tagged (do not use) and removed from service. Portable electric tools and all cord and plug connected equipment shall be protected by a ground-fault circuit interrupter (GFCI) device. Electrical tools shall be inspected daily prior to use.

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Activity	Potential Hazards	Recommended Controls
Staging Equipment (continued)	Extension cords	 Extension cords that have faulty plugs, damaged insulation, or are unsafe in any way shall be removed from service. Cords shall be protected from damage from sharp edges, projections, pinch points (doorways), and vehicular traffic. Cords shall be suspended with a nonconductive support (rope, plastic ties, etc.). Cords shall be designed for hard duty. Cords shall be inspected daily.
	Lightning strikes	 Whenever possible, halt activities and take cover. If outdoors, stay low to the ground. Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than lying on the ground). Seek shelter in a building if possible. Stay away from windows. If available, crouch under a group of trees instead of one. Keep all body parts in contact with the ground as close as possible. Remain 6 feet away from tree trunk if seeking shelter beneath tree(s). If in a group, keep 6 feet of distance between people.
	Thunderstorms, tornados	 Listen to radio or TV announcements for pending weather information. Cease field activities during thunderstorm or tornado warnings. Seek shelter. Do not try to outrun a tornado.
	UXO	A UXO specialist will conduct a UXO surface survey prior to staging equipment in former impact areas.
Surveying	Slip, trip, and fall hazards	 Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe boots when working in the field. Provide adequate lighting in all work areas. Whenever possible, avoid routing cords and hoses across walking pathways. Flag or cover inconspicuous holes to protect against falls. Work areas will be kept clean and orderly. Garbage and trash will be disposed of daily in approved refuse containers. Tools and accessories will be properly maintained and stored. Work areas and floors will be kept free of dirt, grease, and slippery materials.

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Activity	Potential Hazards	Recommended Controls
Surveying (continued)	Traffic accidents	 Place physical barrier (i.e., barricades, fencing) around work areas regularly occupied by pedestrians. If working adjacent to roadways, have workers wear fluorescent orange vests. Use warning signs or lights to alert oncoming traffic. Assign flag person(s) if necessary to direct local traffic. Set up temporary parking locations outside the immediate work area. Motor vehicle operators shall obey all posted traffic signs, signals, and speed limits. Pedestrians have the right-of-way. Wear seat belts when vehicles are in motion.
	Wildlife hazards	Workers should be cautious when driving through the site in order to avoid encounters with passing animals.
	Biological hazards	Walking through overgrown grass areas, watch for snakes (rattlesnakes, moccasins, and copperheads).
	Ticks	 Wear light colored clothing (can see ticks better). Mow vegetated and small brush areas. Wear insect repellant. Wear long sleeves and long pants. Visually check oneself promptly and frequently after exiting the work area.
	Poison ivy/oak/sumac	 Avoid plant areas if possible. Wear long sleeves and long pants. Promptly wash clothing that has contacted poisonous plants. Wash affected areas immediately with soap and water.
UXO Surface and Downhole Surveys	Slip, trip, and fall hazards	 Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe boots when working in the field. Provide adequate lighting in all work areas. Whenever possible, avoid routing cords and hoses across walking pathways. Flag or cover inconspicuous holes to protect against falls. Work areas will be kept clean and orderly. Garbage and trash will be disposed of daily in approved refuse containers. Tools and accessories will be properly maintained and stored. Work areas and floors will be kept free of dirt, grease, and slippery materials.

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Activity	Potential Hazards	Recommended Controls
UXO Surface and Downhole Surveys (continued)	Traffic accidents	 Place physical barrier (I.E., barricades, fencing) around work areas regularly occupied by pedestrians. If working adjacent to roadways, have workers wear fluorescent orange vests. Use warning signs or lights to alert oncoming traffic. Assign flag person(s) if necessary to direct local traffic. Set up temporary parking locations outside the immediate work area. Motor vehicle operators shall obey all posted traffic signs, signals, and speed limits. Pedestrians have the right-of-way. Wear seat belts when vehicles are in motion.
	Wildlife hazards	Workers should be cautious when driving through the site in order to avoid encounters with passing animals.
	Biological hazards	Walking through overgrown grass areas, watch for snakes (rattlesnakes, moccasins, copperheads).
	Ticks	 Wear light colored clothing (can see ticks better). Mow vegetated and small brush areas. Wear insect repellant. Wear long sleeves and long pants. Tape pants or Tyvek to work boots. Visually check oneself promptly and frequently after exiting the work area.
	Poison ivy/oak/sumac	 Avoid plant areas if possible. Wear long sleeves and long pants. Apply protective cream/lotion to exposed skin to prevent poison ivy/oak or similar reactions. Promptly wash clothing that has contacted poisonous plants. Wash affected areas immediately with soap and water.
	UXO	Only UXO specialist may perform the UXO surveys. Downhole UXO surveys will be conducted prior to soil borings and subsurface sampling.

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Activity	Potential Hazards	Recommended Controls
Soil Boring, Surface/Sub- surface, and Depositional Soil Sampling	Cross-contamination and contact with potentially contaminated materials	 Stop immediately at any sign of obstruction. Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. Only essential personnel will be in the work area. Real-time air monitoring will take place before and during sampling activities. All personnel will follow good hygiene practices. Proper decontamination procedures will be followed. All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	Use care when handling glassware.Wear adequate hand protection.
	Slip, trip, and fall hazards	 Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe/shank boots when working in the field. Whenever possible, avoid routing cords and hoses across walking pathways. Flag or cover inconspicuous holes to protect against falls.
	Bees, spiders, and snakes	 Workers shall inspect the work area carefully and avoid placing hands and feet into concealed areas. Evaluate need for sensitive workers to have prescribed antibiotic or medicine to combat onset of symptoms.
	Poison ivy/oak/sumac	 Avoid plant areas if possible. Wear long sleeves and long pants. Promptly wash clothing that has contacted poisonous plants. Wash affected areas immediately with soap and water.
	Cold stress	 Workers should wear insulated clothing when temperatures drop below 40^BF. Drink warm beverages on breaks. Refrain from drinking caffeinated beverages. Remove wet clothing promptly. Take breaks in warm areas. Reduce work periods as necessary. Layer work clothing.

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Activity	Potential Hazards	Recommended Controls
Soil Boring, Surface/Sub- surface, and Depositional Soil Sampling (continued)	Access/egress hazards	 Use qualified and trained bushhog operator. Keep employees out of the bushhog work area. Utilize good housekeeping practices. Keep aisleways, pathways, and work areas free of obstruction. Clean ice or snow off of walkways or work stations. Use appropriate footwear for the task assigned.
	Heat rash	 Keep the skin clean and dry. Change perspiration-soaked clothing, as necessary. Bathe at end of work shift or day. Apply powder to affected area. Comply with IT Procedure HS400 (May 13, 1999).
	Heat cramps	 Drink plenty of cool fluids even when not thirsty. Provide cool fluid for work crews. Move victim to shaded, cool area. Comply with IT Procedure HS400 (May 13,1999)
	Heat exhaustion	 Conduct physiological worker monitoring as needed (i.e., heart rate, and oral temperature). Set up work/rest periods. Use the buddy system. Allow workers time to acclimate. Have ice packs available for use. Take frequent breaks. Comply with IT Procedure HS400 (May 13, 1999).
	Heat stroke	 Evaluate possibility of night work. Perform physiological monitoring on workers during breaks. Wear body cooling devices. Comply with IT Procedure HS400 (May 13, 1999).

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Activity	Potential Hazards	Recommended Controls
Soil Boring, Surface/Sub- surface, and Depositional Soil Sampling (continued)	Lightning strikes	 Whenever possible, halt activities and take cover. If outdoors, stay low to the ground. Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than lying on the ground). Seek shelter in a building if possible. Stay away from windows. If available, crouch under a group of trees instead of one single tree. Keep all body parts in contact with the ground as close as possible. If in a group, keep 6 feet of distance between people. Remain 6 feet away from tree trunk if seeking shelter beneath tree(s).
Drilling and Installation of Monitoring Well	Overhead Hazards Faulty or damaged equipment being utilized to perform work	 Make sure no obstacles are within radius of boom. Always stay a safe distance from power lines. All machinery or mechanized equipment will be inspected by a competent mechanic to determine if it is in safe operating condition. Equipment will be inspected before use and at the beginning of each shift. Faulty/unsafe equipment will be tagged and if possible locked out. Drill rigs shall be equipped with reverse signal alarm, backup warning lights, or the vehicle is backed up only when an observer signals it is safe to do so.
	Uneven terrain, poor ground support, inadequate clearances, contact with utilities	 Inspections or determinations of rod conditions and structures shall be made in advance to ensure that clearances and load capacities are safe for the passage or placing of any machinery or equipment. All mobile equipment and areas in which they are operated shall be adequately illuminated. Aboveground and below ground utilities will be located prior to staging equipment. Whenever the equipment is parked, the parking brake shall be set. Equipment parked on inclines will have the wheels chocked. Inspect brakes and tire pressure on drill rig before staging for work.
	Inexperienced operator	 Machinery and mechanized equipment shall be operated only by designated personnel. Operators shall inform their supervisor(s) of any prescribed medication that they are taking that would impair their judgement.

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Activity	Potential Hazards	Recommended Controls
Drilling and Installation of Monitoring Well (continued)	Jacks/outriggers	Ensure proper footing and cribbing.
	Falling objects	 Remove unsecured tools and materials before raising or lowering the derrick. Stay alert and clear of materials suspended overhead.
	Pinch points	 Keep feet and hands clear of moving/suspended materials and equipment. Stay alert at all times.
	Fire	 Mechanized equipment shall be shut down prior to and during fueling operations. Have fire extinguishers inspected and readily available.
	Fall hazards	 Personnel are not allowed to work off of machinery or use them as ladders. Use fall protection when working above 6 feet.
	Noise	Hearing protection is mandatory above 85 dBA.
	Contact with rotating or reciprocating machine parts	 Use machine guards; use long-handled shovels to remove auger cuttings. Use safe lockout procedures for maintenance work.
	Heavy lifting	Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.
	Slip, trip, and fall hazards	 Practice good housekeeping; keep work area picked up and clean as feasible. Continually inspect the work area for slip, trip, and fall hazards.
	Contact with potentially contaminated materials	 Real time air monitoring will take place. If necessary, proper personal protective clothing and equipment will be utilized. Stop immediately at any sign of obstruction. Do not breathe air surrounding boring unless necessary. Upgrade to respirator if necessary. Avoid skin contact with soil cuttings. Wear gloves. Stay clear of moving parts of drill rig.

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Activity	Potential Hazards	Recommended Controls
Drilling and Installation of Monitoring Well (continued)	Drum handling	 Be careful not to breathe air from around open drum any more that necessary. Monitor with photoionization detector/flame ionization detector (PID/FID) equipment and upgrade to respirator if necessary. When filling a drum (with either soil or water), be careful not to make contact with the contained waste. Wear appropriate gloves. Make sure lid or bung of drum is secure. If moving a drum unassisted, be sure to leverage properly, use proper lifting techniques, and wear safety glasses and steel-toed boot. When using a drum dolly, make sure straps and lid catch are securely attached. Leverage properly when tilting drum. Be sure toes stay away from drum.
	UXO	A UXO specialist will conduct downhole UXO surveys prior to soil boring and subsurface sampling.
Soil Sampling	Cross-contamination and contact with potentially contaminated materials	 Wear proper protective clothing and equipment to safeguard against potential contamination. Avoid skin contact with water. Real-time air monitoring will take place before and during sampling activities. Only essential personnel will be in the work area. All personnel will follow good hygiene practices. Proper decontamination procedures will be followed. All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	Wear adequate hand protection.
	Strains/sprains	 Use the proper tool for the job being performed. Get assistance in needed. Avoid twisting/turning while pulling on tools, moving equipment, etc.
	Spills/residual materials	Absorbent material and containers will be kept available where leaks or spills may occur.
	Lighting	Adequate lighting will be provided to ensure a safe working environment.
	Unattended worker	Use "buddy system" – visual contact will be maintained with the sampling technician during sampling activities.

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Activity	Potential Hazards	Recommended Controls
Groundwater Sampling	Cross-contamination and contact with potentially contaminated materials	 Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. Avoid skin contact with water. Handle samples with care. Only essential personnel will be in the work area. Real-time air monitoring will take place before and during sampling activities. All personnel will follow good hygiene practices. Proper decontamination procedures will be followed. All liquids and materials used for decontamination will be contained and disposed of in accordance with Federal, state, and local regulations.
	Cut hazards	Use care when handling glassware.Wear adequate hand protection.
	Hazard communication	 MSDSs shall be obtained for hazardous chemicals brought on site. Label all containers as to contents and appropriate hazard warning.
	Strains/sprains	 Use the proper tool for the job being performed. Get assistance in needed. Avoid twisting/turning while pulling on tools, moving equipment, etc.
	Spill/residual materials	Absorbent material and containers will be kept available where leaks or spills may occur.
	Lighting	Adequate lighting will be provided to ensure a safe working environment.
	Unattended worker	Use "buddy system" – visual contact will be maintained with the sampling technician during sampling activities.
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Activity	Potential Hazards	Recommended Controls
Moving and Shipping Collected Samples	Heavy lifting	 Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.
	Pinch points	 Keep hands, fingers, and feet clear of moving/suspended materials and equipment. Beware of contact points. Stay alert at all times!
	Cut hazards	Wear adequate hand protection. Use care when handling glassware.
	Hazard communication	Label all containers as to contents and associated hazards.
Material Storage	Flammable and combustible liquids	 Store in NO SMOKING AREA. Fire extinguisher readily available. Transfer only when properly grounded and bonded.
Disposal of Investigation- Derived Waste (IDW) (Forklift Operation)	Personnel injury, property damage, and/or equipment damage	 Use qualified and trained forklift operators. The operator shall not exceed the load capacity rating for the forklift. The load capacity shall be clearly visible on the forklift. Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.
	Cross-contamination and contact with potentially contaminated materials	 Stop immediately at any sign of obstruction. Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. Only essential personnel will be in the work area. Real-time air monitoring will take place before and during sampling activities. All personnel will follow good hygiene practices. Proper decontamination procedures will be followed. All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.

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Activity	Potential Hazards	Recommended Controls
Disposal of Investigation- Derived Waste (IDW) (Forklift Operation) (continued)	Cut hazards	Use care when handling glassware. Wear adequate hand protection.
High-Pressure Water Jetting Operations (if applicable)	Heavy lifting	Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.
	Slip, trip, and fall hazards	 Good housekeeping shall be implemented. The work area shall be kept clean as feasible. Inspect the work area for slip, trip, and fall hazards.
	Fueling	 Only approved safety cans shall be used to store fuel. Do not refuel equipment while it is operating. Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Faulty or damaged equipment	 Equipment shall be inspected before being placed into service and at the beginning of each shift. Preventive maintenance procedures recommended by the manufacturer shall be followed. A lockout/tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.
	High-pressure water	 Jetting gun operator must wear appropriate PPE including hard hat, impact-resistant safety glasses with side shields, water-resistant clothing, metatarsal guards for feet and legs, and hearing protection (if appropriate). One standby person shall be available within the vicinity of the pump during jetting operation. The work area shall be isolated and adequate barriers will be used to warn other site personnel.
	Unqualified operators	Only qualified and trained personnel are permitted to operate machinery and mechanized equipment associated with water jet cutting and cleaning.
	Out of control equipment	 No machinery or equipment is permitted to run unattended. Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
	Noise	Sound levels above 85 dBA mandates hearing protection by nearby site personnel.

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Activity	Potential Hazards	Recommended Controls
High-Pressure Water Jetting Operations (if applicable) (continued)	Activation during repairs	All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done.
	Pinch points	Keep feet and hands clear of moving/suspended materials and equipment. Stay alert and clear of materials suspended.
	Falling objects	 Hard hats are required by site personnel. Stay alert and clear of material suspended overhead.
	Flying debris	Impact-resistant safety glasses with side shields are required.
	Contact with potentially contaminated materials	All site personnel will wear the appropriate PPE.